

6-56. AN ANCIENT PUZZLE

Parts (a) – (f) below are similar to a puzzle that is more than 2100 years old. Mathematicians first created the puzzle in ancient India in the 2nd century BC. More recently, about 700 years ago, Muslim mathematicians created the first tables allowing them to find answers to this type of puzzle quickly. Tables similar to them appeared in school math books until recently.

Here are some clues to help you figure out how the puzzle works:

$$\log_2 8 = 3$$

$$\log_3 27 = 3$$

$$\log_5 25 = 2$$

$$\log_{10} 10,000 = 4$$

Use the clues to find the missing pieces of the puzzles below:

a. $\log_2 8 = ?$

b. $\log_2 32 = ?$

c. $\log_7 100 = 2$

d. $\log_5 ? = 3$

e. $\log_7 81 = 4$

f. $\log_{100} 10 = ?$